

REMARKS

I. STATUS OF THE CLAIMS

Claims 1-10 are currently pending.

II. OBJECTIONS TO THE CLAIMS

The Examiner objects to various informalities in the claims. Therefore, the claims are amended herein to overcome the objections.

III. REJECTION OF CLAIMS 1, 2, 4 AND 8 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER INOUE

Regarding independent claim 1, the Examiner refers to FIGS. 32 and 1 of Inoue.

It is respectfully submitted that the circuits illustrated in FIG. 32 and FIG. 1 (prior art) of Inoue are two separate inventions that would not be combinable as suggested by the Examiner, and have different components that would not be combined as suggested by the Examiner.

Further, it is respectfully submitted that, even if one of ordinary skill in the art would have been motivated to combine these different circuits illustrated in FIGS. 1 and 32 of Inoue, they would not provide the features recited in independent claim 1. More specifically, FIG. 32 illustrates optical waveguides and optical couplers, but does not teach or suggest "an optical waveguide formed on the substrate guiding light which is emitted or leaking from said optical coupling part," as recited in independent claim 1.

Further, although FIG. 1 of Inoue illustrates a coupler 5 to transfer light between waveguides 1 and 2, this figure does not teach or suggest "an optical waveguide formed on the substrate guiding light which is emitted or leaking from said optical coupling part," as recited in independent claim 1.

Accordingly, it is respectfully submitted that, even if one of ordinary skill in the art would have been motivated to combine these two teachings (FIGS. 1 and 32 of Inoue), the invention as recited in independent claim 1 would not have been obtained.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. REJECTION OF CLAIM 3 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER INOUE IN VIEW OF HOUSE

The above comments for distinguishing over Inoue, also apply here, as appropriate.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. REJECTION OF CLAIM 5 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER INOUE AND FURTHER IN VIEW OF ASANO

The above comments for distinguishing over Inoue, also apply here, as appropriate. In view of the above, it is respectfully submitted that the rejection is overcome.

VI. REJECTION OF CLAIM 6 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER INOUE AND FURTHER IN VIEW OF OOI

The above comments for distinguishing over Inoue, also apply here, as appropriate. In view of the above, it is respectfully submitted that the rejection is overcome.

VII. REJECTION OF CLAIM 7 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER INOUE AND FURTHER IN VIEW OF HOSOI

The above comments for distinguishing over Inoue, also apply here, as appropriate. In view of the above, it is respectfully submitted that the rejection is overcome.

VIII. REJECTION OF CLAIM 9 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER INOUE IN VIEW OF SANO

The above comments for distinguishing over Inoue, also apply here, as appropriate.

Although Inoue illustrates at FIG. 15 optical elements 51 and 52 (or 53 and 54) on a substrate, and a coupler 55a acting as an optical waveguide connecting 51 and 52, it is respectfully submitted that there is no teaching or suggestion in Inoue of using a pair of optical waveguides formed on both sides of the first optical waveguide (55a) to guide unnecessary light outputted from the first optical waveguide (55a), as admitted by the Examiner.

Further, although Sano illustrates two waveguides 4 and 5 on both sides of an optical element to eliminate unnecessary light, these waveguides are not provided to, nor could they perform the operation of guiding unnecessary light outputted from optical waveguides connected upstream and downstream of one another.

Accordingly, it is respectfully submitted that the optical waveguides 4 and 5 of Sano are not combinable with the system of FIG. 15 of Inoue to guide unnecessary light outputted from the coupler 55a.

In view of the above, it is respectfully submitted that the rejection is overcome.

IX. REJECTION OF CLAIM 10 UNDER 35 USC 103 AS BEING UNPATENTABLE
OVER INOUE IN VIEW OF MILLER

The above comments for distinguishing over Inoue also apply here, as appropriate.

Moreover, it is respectfully submitted that, contrary to the assertions by the Examiner, Miller at FIG. 8 (column 13, lines 1-15) only discloses couplers and coupling ratios, and does not teach or suggest a second optical waveguide formed to guide subsidiary light from the first waveguide.

In view of the above, it is respectfully submitted that the rejection is overcome.

X. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is respectfully requested.

If any further fees are required in connection with the filing of this response, please charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date:

June 26, 2003

By:

Paul I. Kravetz

Paul I. Kravetz
Registration No. 35,230

700 Eleventh Street, NW, Suite 500
Washington, D.C. 20001
(202) 434-1500

VERSION TO SHOW MARKINGS:

Please AMEND the claims as indicated below:

1. (PREVIOUSLY AMENDED) An optical circuit comprising:
a first optical element formed on a substrate guiding light and having an optical coupling part;
a second optical element formed on said substrate guiding light from the first optical element; and
an optical waveguide formed on the substrate guiding light which is emitted or leaking from said optical coupling part.
2. (CURRENTLY AMENDED) The optical circuit according to Claim 1, wherein at least one [of said plurality of optical elements] optical element is a Mach-Zehnder type optical element.
3. (CURRENTLY AMENDED) The optical circuit according to Claim 1, wherein at least one [of said plurality of optical elements] optical element is a Mach-Zehnder interferometer type optical modulator.
4. (CURRENTLY AMENDED) The optical circuit according to Claim 1, wherein at least two [of said plurality of] optical elements are connected in tandem.
5. (PREVIOUSLY AMENDED) The optical circuit according to Claim 1, wherein said substrate is made of ferroelectric material.
6. (CURRENTLY AMENDED) The optical circuit according to Claim 1, wherein:
one [of said plurality of optical elements] optical element is a first Mach-Zehnder type optical modulating part for applying a clock signal voltage at a predetermined cycle to an electrode for varying a refractive index of said first optical waveguide; and
one [of said plurality of optical elements] optical element is a second Mach-Zehnder type optical modulating part connected in tandem with said first Mach-Zehnder type optical modulating part for applying a signal voltage modulated according to information to be transmitted, to said electrode.

7. (ORIGINAL) The optical circuit according to Claim 1, wherein said substrate is made of lithium niobate (LiNbO_3).

8. (PREVIOUSLY AMENDED) The optical circuit according to Claim 1, wherein light from said first optical element is formed in a Mach-Zehnder interferometer structure to attenuate light intensity and vary an amount of attenuation.

9. (PREVIOUSLY ADDED) An optical circuit comprising:
a substrate having at least two optical elements;
a first optical waveguide formed on said substrate and connecting said optical elements to guide signal light outputted from an upstream optical element to a downstream optical element; and
a pair of second optical waveguides formed on said substrate and formed on both sides of said first optical waveguide to guide unnecessary light outputted from said first optical waveguide.

10. (CURRENTLY AMENDED) An optical circuit comprising:
a first optical waveguide formed on [said] a substrate connecting optical elements to guide signal light outputted from one optical element to another; and
a second optical waveguide formed on the substrate to guide subsidiary light emitted from said first optical waveguide.